

# Original Article

## Distance refractive error among Aboriginal people attending eye clinics in remote South Australia

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### ABSTRACT

**Purpose:** To determine the prevalence of distance refractive error among Aboriginal people attending eye clinics in remote South Australia.

**Methods:** A clinic-based cross-sectional study was conducted that involved opportunistic sampling of Aboriginal people attending eye clinics in remote South Australia. There were 189 individuals who were invited to participate in the study all of whom underwent ophthalmic examination. This examination included measurement of pinhole-corrected visual acuity and non-cycloplegic autorefractometry.

**Results:** Automated refractive error examinations were performed on 148 people within this sample. The mean age was  $44.8 \pm 14.5$  years and women comprised 57.7% of the sample. The overall mean refractive error was  $-0.01 \pm 1.8$  D (SD). The prevalence of myopia (spherical equivalent (SE)  $< -0.5$  D), high myopia (SE less than or equal to  $-6.0$  D), hypermetropia (SE  $> 0.5$  D), astigmatism (cylinder at least  $-0.5$  D) and anisometropia (difference in SE of  $> 0.5$  D) was 31.1%, 0.7%, 33.1%, 55.8% and 45.9%, respectively. Further analyses revealed significant age-related trends with both myopia and hypermetropia. There were no gender associations with any form of refractive error. Of those people with clinically significant refractive error, 51/148 (34%), only four people owned distance spectacles.

**Conclusions:** There continues to be a level of uncorrected distance refractive error within these patients. This represents a need to screen for refractive error among Aboriginal people in remote locations and to provide them with appropriate spectacle correction.

**Key words:** Aboriginal, low vision, refractive error.

### INTRODUCTION

In May 2003 the 56th World Health Assembly passed resolution WHA56.26 on the elimination of avoidable blindness. This was based on the fact that in 2002, the World Health Organization estimated that there were in excess of 161 million people worldwide with visual impairment (corrected visual acuity [VA]  $< 6/18$  in the better eye), including 37 million with blindness (corrected VA  $< 3/60$  in the better eye).<sup>1,2</sup> If this definition is expanded to include uncorrected refractive error then it is estimated that 259 million people are visually impaired.<sup>3</sup> This represents not only a significant burden to those who are affected, but it also represents a large social and economic cost to the State.<sup>4</sup>

Australia has a lower prevalence of refractive error compared with America and Europe;<sup>5–9</sup> however, in 2004 uncorrected refractive error was found to account for the majority of low vision (62%) in Australia.<sup>10</sup> Although these data are available regarding the epidemiology of refractive error in the general Australian population, there are a paucity of data available regarding the Australian Aboriginal population living in remote locations.

It is therefore essential that ophthalmic data from these regions are collected in order to optimize the allocation of scarce resources. Limited anecdotal evidence from clinic-based experience suggests that uncorrected refractive error continues to lead to visual impairment in remote Aboriginal communities.

This paper reports on the frequency and causes of distance refractive error among Aboriginal people who were screened in remote South Australia eye clinics. The data demonstrate that the correction of refractive error may reduce the level of visual impairment.

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